(No Model.)

2 Sheets—Sheet 1.

D. P. HALL.

CUTTER HEAD.

No. 284,630. Patented Sept. 11, 1883.

Fig. 2.

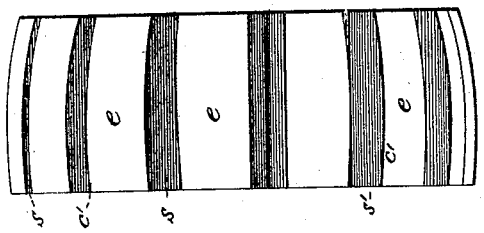
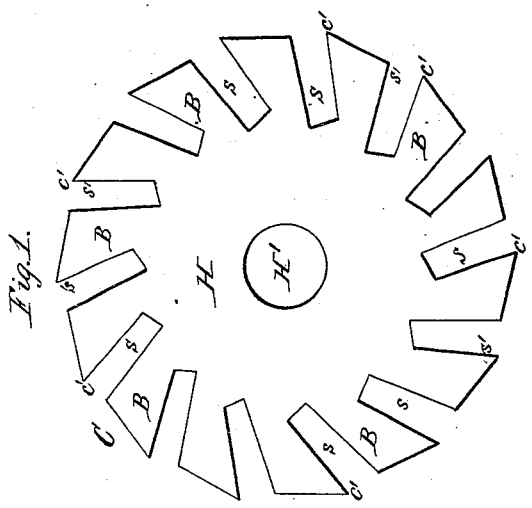


Fig. 1.



Witnesses:

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Franck D. Johns

Inventor:

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by

W. W. Corrington.

his Attorney.

(No Model.)

2 Sheets—Sheet 2.

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CUTTER HEAD.

No. 284,630. Patented Sept. 11, 1883.

Fig. 3.

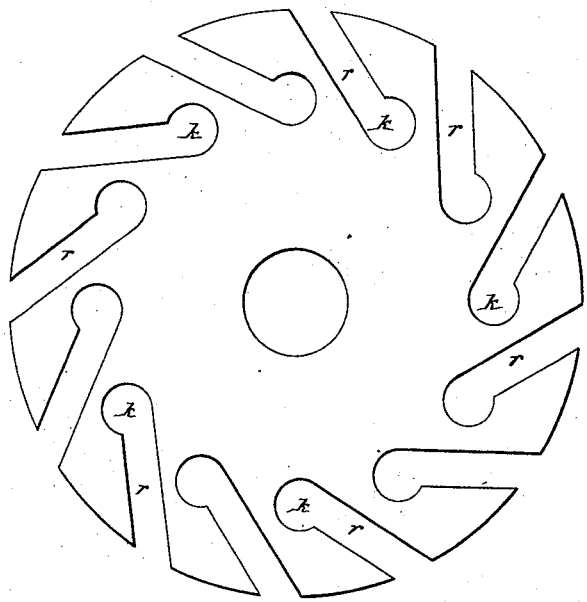
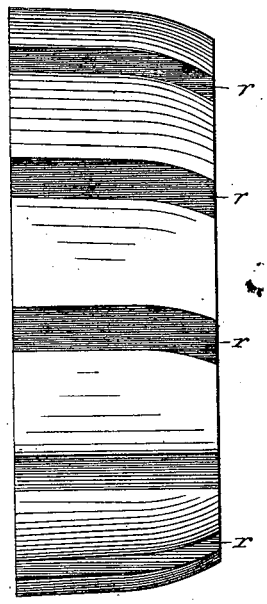


Fig. 4.



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UNITED STATES PATENT OFFICE.

DYER P. HALL, OF ROCHESTER, NEW HAMPSHIRE, ASSIGNOR TO EBENEZER G. WALLACE AND EDWIN WALLACE, OF SAME PLACE.

CUTTER-HEAD.

SPECIFICATION forming part of Letters Patent No. 284,630, dated September 11, 1883.

Application filed June 20, 1883. (No model.)

To all whom it may concern:

Be it known that I, DYER P. HALL, a citizen of the United States, residing at Rochester, in the county of Strafford and State of New Hampshire, have invented certain new and useful Improvements in Cutter-Heads; and I do declare the following to be a full, clear, and exact description of the invention, such as will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to the letters and figures of reference marked thereon, which form a part of this specification.

The object of my invention is to produce a cutter-head for trimming the heels of boots or shoes, which shall be efficient, durable, and allow the blades to be easily sharpened when necessary.

My invention consists in forming from a suitable solid blank a cutter-head whose perimeter shall be subdivided into separate plano semi-convex surfaces, with blades located at the angles of the adjacent surfaces and projecting beyond, said surfaces being separated by narrow diagonal slots having parallel sides, forming not only the heel of the blades, but also the front surfaces and cutting-edges when the tops of the blades are "backed off," as may be desired, in view of the work to be done.

My invention further consists in so inclining the slots that there shall be a great or ample thickness of metal between the front and back surfaces of the blades, and the front surface of any blade shall be parallel to the back of the blade in front of it, the cutting-edge at one end of the surfaces projecting as desired.

Figure 1 is an end view of my cutter-head. Fig. 2 is a side elevation thereof. Fig. 3 is an end view of a modification. Fig. 4 is a side elevation of the same.

Like letters refer to like parts in the drawings.

The blank used to form the cutter-head shown by Fig. 1 may be circular, forged from cast-steel, and turned in a lathe to get the desired perimeter. The slots can then be cut in and the teeth backed off to give the proper clearance. It is obvious from the contour of the cutter-head that the blank may be circular, polygonal, or otherwise.

H is the hub of the cutter-head, having a shaft-hole, H′, as seen, by means of which it may be attached to the shaft of a suitable machine by a collar and set-screw, or by such means as will give a strong fastening; but this need not be further considered, as several ways might suggest themselves to those skilled in the art. If cut-aways are desired, round holes can be made in the blank before the slots are cut in.

From the blank the cutter portion C is made into a series of blades, B B. These are formed by narrow diagonal slots *s s*, having parallel sides, inclined as shown, and extending from the perimeter to the outer portion of the hub. These slots may be made at unequal distances; but I have shown them inserted at regular intervals—that is to say, the blades may be uniform or vary some. The shape and inclination of the slots not only give the blades the contour and amount of metal shown, but they also divide the perimeter of the cutter-head into separate adjacent surfaces. Specifically speaking, (see Fig. 2,) the outer surfaces, *e*, are curvilinear or semi-convex, longitudinally and plane transversely, to cut a molded form on the heel-edge. When the blades and separate surfaces, as shown by Fig. 1, are formed by cutting in the slots, one side of each surface terminates in a cutting-edge, *c′*, the other in a heel. In order to make the cutting-edge project beyond the adjacent surface, the metal is backed off toward the heel of the blade. The extent of such backing off will be dictated by the work to be done. When the blade-edge extends but little, presumably, the leather will be grazed by the perimeter and sufficiently thrown off by it and the heel of the blades so that any one blade will not cut too deeply. In operation no difficulty has been found on this score. The shape of the perimeter, furthermore, allows the heel of the boot or shoe to be easily supported against it. By turning the cutter-head it will be seen that the heel of each blade not only assumes a level with the cutting-edge, but also projects above it before the following blade strikes into the leather.

Regarding the form of the slots, it will be noticed that each blade has a large front or grinding-surface, *s'*, and inclines sharply forward toward the one in front. The slots being narrow and having parallel sides, I am able to provide a large number of blades, if desired, and the peculiar inclination of these slots gives a great thickness of metal to each blade. There being so much stock in them of the shape shown, said blades will long resist the grinding and backing off required from time to time. Any cutter-head which does not have the blades backed off slightly toward the heel must have it done sooner or later or the parallelism of the sides of the slots will be destroyed in sharpening, and the blades will assume an undesirable or mutilated shape. The cutter-head can be made to vary in thickness, so as to be used on low or high heels, and more or less convex, according to the concavity desired on the heel.

Figs. 3 and 4 show a modification of my device. An inspection of those figures in the drawings would suggest a circular blank, if economy of metal is desirable. The sides of the slots are designed to be perfectly parallel and end in cut-aways. The blades have more metal than those seen in Fig. 1, and the outer surface of each blade is curved longitudinally and transversely. The cutting-edges and the heel of the blades are on the same level when the body of said blades above the cut-aways comes to a right angle with a horizontal line drawn through the center of the driving-shaft. The heel of the blade then quickly passes first to a level with and then below the edge of the following blade. This form of cutter can be used for light and rapid trimming. If the cutter burns the leather too much, the blade-edges can be easily extended by backing off.

I am aware that cutter-heads have been used provided with separable knives, which must be removed for sharpening.

I am aware that cutters made from a single piece of stock and having radial blades and a series of cut-aways have been employed to trim the soles of boots or shoes.

I am also aware that there is a cutter-head in use resembling mine, but it is constructed of several plates or disks clamped to a shaft, and lacks the rigidity and fine trimming qualities that mine has; nor does it have the extent of sharpening-surface and thickness of metal in the blades.

Having fully described my invention, what I claim, and desire to secure by Letters Patent, is—

1. A solid rotary cutter-head having narrow diagonal slots with parallel sides, which divide the perimeter of the cutter-head into a series of blades having a great amount of metal between the front and back surfaces, as set forth.

2. A cutter-head made of a single piece of stock having its perimeter turned curvilinear or semi-convex, as the heels may require, and provided with blades extending from the hub, said blades being formed by a series of narrow diagonal slots, the sides of the slots being parallel to give ample grinding-surface, and a great thickness of metal between the front and back surfaces of the blade, as set forth.

In testimony whereof I affix my signature in presence of two witnesses.

DYER P. HALL.

Witnesses:
CHARLES W. SLEEPER,
JOSEPH H. WORCESTER.